

Claims

1. Recording arrangement for recording an information signal in tracks on a record carrier, the recording arrangement comprising
- an input terminal for receiving the information signal,
 - channel encoding means for channel encoding the information signal so as to obtain a
- 5 channel signal suitable for recording in a track on said record carrier,
- writing means for writing the channel signal in the track,
- the channel signal comprising subsequent signal blocks, each signal block comprising a first block section which comprises a synchronisation signal and a second block section which comprises a number of channel bytes, characterized in that the information signal is an
- 10 MPEG information signal in accordance with an MPEG format, the MPEG information signal comprising subsequent transport packets, that the channel encoding means are adapted to store each time information included in x transport packets of the MPEG information signal in the second block sections of a group of y signal blocks of the channel signal, that the second block section of at least the first signal block of the group of y signal
- 15 blocks comprise a third block section for storing identification information identifying the signal block as being the first signal block of the group of y signal blocks, and that x and y are integers such that $x \geq 1$ and $y > 1$.
2. Recording arrangement for recording an information signal in tracks on a record carrier, the recording arrangement comprising
- 20 - an input terminal for receiving the information signal,
 - channel encoding means for channel encoding the information signal so as to obtain a channel signal suitable for recording in a track on said record carrier,
 - writing means for writing the channel signal in the track,
- the channel signal comprising subsequent signal blocks, each signal block comprising a first
- 25 block section which comprises a synchronisation signal and a second block section which comprises a number of channel bytes, characterized in that the information signal is an MPEG information signal in accordance with an MPEG format, the MPEG information signal comprising subsequent transport packets, that the channel encoding means are adapted to store each time information included in x transport packets of the MPEG
- 30 information signal in the second block sections of a group of y signal blocks of the channel signal, that the second block sections of the signal blocks comprise a third block section for storing sequence number information relating to a sequence number of the signal blocks,

and that x and y are integers such that $x \geq 1$ and $y > 1$.

3. Recording arrangement for recording an information signal in tracks on a record carrier, the recording arrangement comprising

- an input terminal for receiving the information signal,

5 - channel encoding means for channel encoding the information signal so as to obtain a channel signal suitable for recording in a track on said record carrier,

- writing means for writing the channel signal in the track,

the channel signal comprising subsequent signal blocks, each signal block comprising a first block section which comprises a synchronisation signal and a second block section which

10 comprises a number of channel bytes, characterized in that the information signal is an MPEG information signal in accordance with an MPEG format, the MPEG information signal comprising subsequent transport packets, that the channel encoding means are

adapted to store each time information included in x transport packets of the MPEG information signal in the second block sections of a first group of y first signal blocks of

15 said signal blocks of the channel signal so as to enable a normal play mode using video information stored in said first group of y first signal blocks during a normal play reproduction mode, the channel encoding means further being adapted to retrieve a trick

mode video signal from the MPEG information signal and being adapted to store said trick mode video signal in second block sections of a second group of z second signal blocks of

20 said signal blocks of the channel signal so as to enable a trick play mode using the video information stored in said second signal blocks, that the second block sections of at least one signal block in each first and second group of first and second signal blocks respectively comprise a third block section for storing identification information indicating whether the group comprises first signal blocks or second signal blocks,

25 and that x , y and z are integers such that $x \geq 1$, $y > 1$ and $z > 1$.

4. Recording arrangement for recording an information signal in tracks on a record carrier, the recording arrangement comprising

- an input terminal for receiving the information signal,

- channel encoding means for channel encoding the information signal so as to obtain a

30 channel signal suitable for recording in a track on said record carrier,

- writing means for writing the channel signal in the track,

the channel signal comprising subsequent signal blocks, each signal block comprising a first block section which comprises a synchronisation signal and a second block section which

comprises a number of channel bytes, characterized in that the information signal is an

35 MPEG information signal in accordance with an MPEG format, the MPEG information signal comprising subsequent transport packets, that the channel encoding means are

adapted to store each time information included in x transport packets of the MPEG

information signal in the second block sections of a group of y signal blocks of the channel signal, that the second block sections of at least those signal blocks in a group of y signal blocks that comprises the start portion of a transport packet comprise a third block section for storing sequence number information relating to a transport packet sequence number
5 corresponding to the transport packet having its start portion stored in the second block section of the signal block,

and that x and y are integers such that $x \geq 1$ and $y > 1$.

5. Recording arrangement as claimed in claim 3, characterized in that the second block sections of all signal blocks in each first and second group of first and second
10 signal blocks respectively comprise a third block section for storing identification information indicating whether the group comprises first signal blocks or second signal blocks.

6. Recording arrangement as claimed in claim 5, characterized in that the second block sections of a group of y signal blocks each comprise a third block section for
15 storing sequence number information relating to a transport packet sequence number corresponding to the transport packet of which information is stored in said signal block.

7. Recording arrangement for recording an information signal in tracks on a record carrier, the recording arrangement comprising
- an input terminal for receiving the information signal,
20 - channel encoding means for channel encoding the information signal so as to obtain a channel signal suitable for recording in a track on said record carrier,
- writing means for writing the channel signal in the track,
the channel signal comprising subsequent signal blocks, each signal block comprising a first block section which comprises a synchronisation signal and a second block section which
25 comprises a number of channel bytes, characterized in that the information signal is an MPEG information signal in accordance with an MPEG format, the MPEG information signal comprising subsequent transport packets, the recording arrangement comprising detection means for detecting the moment of receipt of the transport packets and for generating timing information for each transport packet received, the timing information for a
30 transport packet corresponding to said moment of receipt of said transport packet, that the channel encoding means are adapted to each time store information included in x transport packets of the MPEG information signal in the second block sections of a group of y signal blocks of the channel signal, that the second block sections of at least those signal blocks in a group of y signal blocks that comprises the start portion of a transport packet comprise a
35 third block section for storing the timing information for said transport packet having its start portion stored in the second block section of the signal block,
and that x and y are integers such that $x \geq 1$ and $y > 1$.

8. Recording arrangement as claimed in claim 7, characterized in that the second block sections of a group of y signal blocks each comprise a third block section for storing the timing information corresponding to the transport packet which has information stored in the second block section of said signal block.
- 5 9. Recording arrangement as claimed in anyone of the preceding claims, characterized in that $y > x$.
10. Record carrier obtained with the recording arrangement as claimed in anyone of the claims 1 to 9.
11. Record carrier as claimed in claim 10, obtained with the recording
10 arrangement as claimed in anyone of the claims 2 to 8, characterized in that identification information identifying the signal block as being the first signal block of the group of y signal blocks is stored in a third block section of the first signal block of a group of y signal blocks.
12. Record carrier as claimed in claim 10, obtained with the recording
15 arrangement as claimed in anyone of the claims 1 and 3 to 8, characterized in that, sequence number information relating to the sequence number of the signal blocks is stored in the third block sections of the signal blocks.
13. Record carrier as claimed in claim 10, obtained with the recording
20 arrangement as claimed in anyone of the claims 1, 2 and 5 to 8, characterized in that the channel signal recorded in a track comprises a first group of y first signal blocks so as to enable a normal play mode using the video information stored in said first group of y first signal blocks during a normal play reproduction mode, and comprises a second group of z second signal blocks in which a trick mode video signal is stored so as to enable a trick play mode using the video information stored a said second group of z second signal blocks, that
25 indication information indicating whether a group comprises first signal blocks or second signal blocks is stored in the third block sections of at least one signal block of the first and second group.
14. Record carrier as claimed in claim 8, obtained with the recording
30 arrangement as claimed in anyone of the claims 1 to 4, 7 and 8, characterized in that, the third block section of the second block sections of at least those signal blocks in a group of y signal blocks that comprises the start portion of a transport packet comprise information relating to a transport packet sequence number corresponding to the transport packet having its start portion stored in the second block section of the signal block.
15. Record carrier as claimed in claim 10, obtained with the recording
35 arrangement as claimed in anyone of the claims 1 to 6, characterized in that the third block section of the second block sections of at least those signal blocks in a group of y signal blocks that comprises the start portion of a transport packet comprise timing information for

said transport packet having its start portion stored in the second block section of the signal block.

16. Reproducing arrangement for reproducing an information signal that has been recorded in the form of a channel signal in tracks on a record carrier, the reproducing
- 5 arrangement comprising
- reading means for reading the channel signal from a track, the channel signal comprising subsequent signal blocks, each signal block comprising a first block section which comprises a synchronisation signal and a second block section which comprises a number of channel bytes,
- 10 - channel decoding means for channel decoding the channel signal so as to obtain the information signal,
- an output terminal for applying the information signal, characterized in that the information signal recorded in the tracks is an MPEG information signal in accordance with an MPEG format, the MPEG information signal comprising
- 15 subsequent transport packets, information comprised in x transport packets of the MPEG information signal being stored in the second block sections of a group of y signal blocks of the channel signal, that x and y are integers such that $x \geq 1$ and $y > 1$, that the second block section of at least the first signal block of the groups of y signal blocks comprise a third block section for storing identification information identifying the
- 20 signal block as being the first signal block of a group of y signal blocks, the reproducing arrangement further comprising
- first retrieving means for retrieving the information comprised in the x transport packets of the MPEG information signal from the group of y signal blocks,
 - second retrieving means for retrieving said indication information from the third block
- 25 sections of the first signal blocks in the group of y signal blocks.
17. Reproducing arrangement for reproducing an information signal that has been recorded in the form of a channel signal in tracks on a record carrier, the reproducing arrangement comprising
- reading means for reading the channel signal from a track,
- 30 the channel signal comprising subsequent signal blocks, each signal block comprising a first block section which comprises a synchronisation signal and a second block section which comprises a number of channel bytes,
- channel decoding means for channel decoding the channel signal so as to obtain the information signal,
- 35 - an output terminal for applying the information signal, characterized in that the information signal recorded in the tracks is an MPEG information signal in accordance with an MPEG format, the MPEG information signal comprising

subsequent transport packets, information comprised in x transport packets of the MPEG information signal being stored in the second block sections of a group of y signal blocks of the channel signal, that x and y are integers such that $x \geq 1$ and $y > 1$,

that the second block sections of the signal blocks comprise a third block section for storing

5 sequence number information relating to the sequence number of the signal blocks,

the reproducing arrangement further comprising

- first retrieving means for retrieving the information comprised in the x transport packets of the MPEG information signal from the group of y signal blocks,

- second retrieving means for retrieving the sequence numbers information from the third

10 block sections of the signal blocks in said track.

18. Reproducing arrangement for reproducing an information signal that has been recorded in the form of a channel signal in tracks on a record carrier, the reproducing arrangement comprising

- reading means for reading the channel signal from a track,

15 the channel signal comprising subsequent signal blocks, each signal block comprising a first block section which comprises a synchronisation signal and a second block section which comprises a number of channel bytes,

- channel decoding means for channel decoding the channel signal so as to obtain the information signal,

20 - an output terminal for applying the information signal,

characterized in that the information signal recorded in the tracks is an MPEG information signal in accordance with an MPEG format, the MPEG information signal comprising

subsequent transport packets, information comprised in x transport packets of the MPEG information signal being stored in the second block sections of a first group of y first signal

25 blocks of the channel signal so as to enable a normal play mode using the video information stored in said first group of y first signal blocks during a normal play reproduction mode,

that x and y are integers such that $x \geq 1$ and $y > 1$,

a trick mode video signal being stored in a second group of z second block sections of second signal blocks of said signal blocks of the channel signal so as to enable a trick play

30 mode using the video information stored in said second group of second signal blocks, that

the second block sections of at least one first and second signal block in the first and second group each comprise a third block section for storing indication information indicating

whether the group comprise first signal blocks or second signal blocks,

the reproducing arrangement further comprising

35 - first retrieving means for retrieving in said normal play mode the video information of the x transport packets of the MPEG information signal from the first group of y first signal

blocks, and for retrieving in said trick play mode the trick mode video signal from the

second group of z second signal blocks, in response to a first or a second control signal respectively supplied by

- second retrieving means for retrieving the indication information indicating whether the group comprise first signal blocks or second signal blocks from the third block sections of the at least one signal block in the first and second groups respectively, the second retrieving means being further adapted to generate said first and second control signal in response thereto.

19. Reproducing arrangement for reproducing an information signal that has been recorded in the form of a channel signal in tracks on a record carrier, the reproducing arrangement comprising

- reading means for reading the channel signal from a track, the channel signal comprising subsequent signal blocks, each signal block comprising a first block section which comprises a synchronisation signal and a second block section which comprises a number of channel bytes,

- channel decoding means for channel decoding the channel signal so as to obtain the information signal,

- an output terminal for applying the information signal, characterized in that the information signal recorded in the tracks is an MPEG information signal in accordance with an MPEG format, the MPEG information signal comprising

subsequent transport packets, information comprised in x transport packets of the MPEG information signal being stored in the second block sections of a group of y signal blocks of the channel signal, that x and y are integers such that $x \geq 1$ and $y > 1$, that the second block sections of at least those signal blocks in a group of y signal blocks that comprises the start portion of a transport packet comprise a third block section for storing sequence number

information relating to a transport packet sequence number corresponding to the transport packet having its start portion stored in the second block section of the signal block, the reproducing arrangement further comprising

- first retrieving means for retrieving the information comprised in the x transport packets of the MPEG information signal from the group of y signal blocks,

- second retrieving means for retrieving the sequence number information relating to the transport packet sequence number from a third block section of a signal block in the group of y signal blocks.

20. Reproducing arrangement for reproducing an information signal that has been recorded in the form of a channel signal in tracks on a record carrier, the reproducing arrangement comprising

- reading means for reading the channel signal from a track, the channel signal comprising subsequent signal blocks, each signal block comprising a first

block section which comprises a synchronisation signal and a second block section which comprises a number of channel bytes,

- channel decoding means for channel decoding the channel signal so as to obtain the information signal,

5 - an output terminal for applying the information signal,

characterized in that the information signal recorded in the tracks is an MPEG information signal in accordance with an MPEG format, the MPEG information signal comprising subsequent transport packets, information comprised in x transport packets of the MPEG information signal being stored in the second block sections of a group of y signal blocks of

10 the channel signal, that x and y are integers such that $x \geq 1$ and $y > 1$, that the second block sections of at least those signal blocks in a group of y signal blocks that comprises the start portion of a transport packet comprise a third block section for storing timing information for said transport packet having its start portion stored in the second block section of the signal block,

15 the reproducing arrangement further comprising

- first retrieving means for retrieving the information comprised in the x transport packets of the MPEG information signal from the group of y signal blocks,

- second retrieving means for retrieving the timing information from a third block section of a signal block in the group of y signal blocks.

20 21. Reproducing arrangement as claimed in anyone of the claims 16 to 20, characterized in that $y > x$.